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IN REGARD TO THE

Etiology and Surgical Treatment

OF

"COLDS IN THE HEAD,"

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## SOME POINTS IN REGARD TO THE ETIOLOGY AND SURGICAL TREATMENT OF "COLDS IN THE HEAD."

BY CLARENCE C. RICE, M.D.,

Instructor in Diseases of the Nose and Throat.

Upon first thought a cold in the head will seem to most physicians to be too simple a matter to require surgical treatment. But if this malady is a simple one it is also a most frequent one, and if any treatment can be suggested which will in the majority of instances abort an attack of acute coryza, it will be welcome to physician and patient alike. Let me explain that by surgical treatment I mean such methods as cauterization, cutting, etc., in contra-distinction to the topical application of drugs to a mucous surface. A "cold in the head" and an acute coryza are not generally understood as synonymous terms, although so used by some writers but I believe that they differ only in degree—the every-day "cold in the head" being a mild form of an acute coryza, and I think it is proper to use the terms in this sense.

The etiology of "catching cold" has never been very satisfactorily explained. There are several theories which have been advanced, and which, combined, will perhaps account for this irritation and inflammation of the nasal mucous membrane; but nervous causes—and if, too, these be "reflex ones"—never seem to us thoroughly satisfactory. We should like to get a little nearer to the cause of a "cold in the head" than we are, when we believe that it is occasioned by the rapid abstraction of heat from the surface of the body, or that the chilling of the skin either causes internal congestion, or prevents the excretion through the skin of poisonous oxidized products. Still less satisfactory is the theory of Woakes, of London, in his book on post-nasal catarrh.\* He asserts that "the mechanism of the chill implies vessel dilatation in the parts of least resistance in response to an afferent impression reflexly transferred to this efferent area," and that "the tendency of the chemical qualities of the consequent effusion is to determine the issues of the inflammation thus brought about." There may be much truth in this; and the other, generally accepted causes of catarrhal inflammation of mucous membranes, and they serve a valuable purpose in indicating the proper therapeutic methods to be adopted, in order to avoid chilling the body, such as care of the feet, rubbing and bathing the body, wearing proper clothing, avoiding injurious temperature and draughts, exercising and eating correctly. These are all

\* Woakes, Post-Nasal Catarrh, p. 65.



most important points to be observed, and they will always be invaluable preventives against catching cold.

I believe some further knowledge of the etiology of simple catarrhal inflammations, and especially those of the nose, may be gained by paying more attention to the conditions of the nasal mucous membrane, which predispose to these inflammations and to the local irritants which excite them, leaving out of consideration for the time factors which act upon the surface of the body and which affect the mucous membranes indirectly through the nervous system. Let us examine these local causes for a moment. What conditions of the nasal cavities, their bones and mucous membranes, predispose to colds in the head or mild forms of coryza? In the first place, it is proper to assert that, more than anything else, *previous inflammations of this part of the body strongly predispose to subsequent attacks.* And here it is easily understood what patients mean when they say, "I have frequent colds, because my nose or my throat is my weakest part," or the part of least resistance. The pathological conditions of the nose caused by an attack of catarrhal inflammation render second attacks very probable. The congestion and consequent dilatation of the capillaries of the nose seen during an attack of coryza, never subside completely, even after the acute process has passed away. The nasal mucous membrane is left in a more sensitive condition than before; and less and less irritation is required to bring on fresh nasal catarrhs. This is more true of the nasal mucous membrane than any other in the body, because of its peculiarly exposed position, subjected as it is to numerous and constant irritants, such as foreign bodies in the air, and rapid atmospheric changes. If such causes of colds in the head could be removed, acute catarrh of the nose would be a much less frequent complaint, and chilling of the surface of the body would produce other effects. I have sometimes thought that the mucous membrane of the upper respiratory tract acts as a safety valve for the body; catarrhal inflammation here carrying off excrementitious products which otherwise would give rise to internal congestions, and produce pneumonia or nephritis. It is quite likely that the person who suffers from frequent acute attacks of catarrh of the nose and throat, and has more or less chronic trouble of this kind all the time, is not so liable to have inflammation of the lungs or kidneys as one who never suffers from colds in the head.

The *physiological action required of the nasal mucous membrane* greatly predisposes it to catarrhal inflammation. Congestion is here as normal as it is in the stomach during digestion, the soft tissues swelling and contracting, at one time partially occluding the nasal cavities, and at other times leaving them freely open, according to surrounding conditions. The soft tissues of the nose are almost as constantly in motion as the iris. Such continual physiological hyperæmia strongly pre-

disposes to pathological congestions, and from the redness and swelling of a healthy nostril, it seems but a step to the redness, swelling, pain, and increased secretion of an acute catarrhal process. The physiological congestion of the tissues over the inferior turbinated bones would disappear as completely as that of the stomach after digestion has been finished, were it not for the constant presence of irritants in the air breathed, which always tend to keep the mucous membrane somewhat reddened and swollen. Constant congestion, even for physiological purposes, cannot but cause formation of submucous connective tissue.

*Malformations of the nostrils* are another fruitful predisposing cause of colds in the head and acute coryza. The person who has large, roomy nostrils, with the septum midway between them, will not suffer often from acute catarrh. I am also satisfied that a nostril made narrow by the deviation of the septum is much more prone to acute catarrh than its fellow, and for this reason: in a narrow nostril the mucous membrane when congested comes in contact with the cartilaginous septum; and I have found such contact to be irritating. A nostril, too, which does not admit air freely, is always a sensitive one, and predisposed to both acute and chronic catarrh. The secretion collects in the narrow chink between the mucous membrane and the septum, and is itself a further cause of irritation. In such a nostril inflammation is going on in a mild way all the time. It requires no chilling of the skin by exposure to wet and cold to produce acute catarrh here. A sudden change in the atmospheric temperature, or a draught, is sufficient to cause an acute attack, where a subacute process has been constantly going on. There are other conditions in addition to a deviated septum, such as exostoses or polypi, which predispose to colds in the head. We should expect that a polypus, which might appropriately be called a foreign body, would cause constant irritation, and so predispose to acute catarrh. A deviated septum acts upon the same principle; its mal-position constantly irritates the narrower of the two nostrils.

I shall not enter deeply into the matter of exciting causes, because I have no new theories to advance in regard to them; with the pre-disposition that I have stated any exposure to unaccustomed conditions, cold or damp air, draughts, dirt, dust, etc., will be found sufficient to excite an acute catarrh. The predisposing causes which I have enumerated certainly cover a large part, if not the whole, of the ground. As was said in the beginning, it is well to look into the nostrils for the causes of colds in the head rather than to be satisfied with remote disturbances, and such inquiry will usually discover some one of the conditions which have been enumerated. Every physician meets patients who complain that they are always "catching cold;" that they have a cold in the head from fall to spring. Now it is not to be supposed that these

people are especially exposed to cold and draught and moisture; that chilliness of the skin has caused a revulsion to the nasal mucous membrane. An examination of the nostrils, when free from coryza, will frequently show the following condition: the mucous membrane red, that portion over the inferior turbinated bones swollen, standing out prominently in large boggy masses, occluding three-fourths of the wide nostril and the whole of the narrow one. This is the condition under the most favorable circumstances, when the patient is free from cold. A slight exposure increases the redness and swelling so that the mucous membrane touches the septum—a new irritation; the secretion becomes liquid in character and more copious; there is a sense of heat, fullness and obstruction about the nostrils, eyes and frontal sinuses, and an acute coryza is added to the pre-existing subacute catarrh. I believe this to be a true picture of the etiology of the ordinary simple acute coryza.

It has never been deemed of sufficient importance to reduce the treatment of colds in the head to a scientific basis, partly because they are so common, partly because their evil effects have been underestimated, and partly because all treatment hitherto employed has not been found satisfactory or successful. The name, "cold in the head," has come to be an unfortunate one, because it signifies nothing but slight inconvenience for a short time to the patient, and to the physician a malady which is best let alone, and which will cure itself in a short time, as though acute catarrh of the nose, like measles and small-pox, was a self limited disease, which soon runs itself out, never to return. Now I contend that if chronic nasal, pharyngeal and eustachian catarrhs are diseases of sufficient importance to spend any time upon in endeavoring to alleviate or cure, the acute process, which is the subject of this paper, deserves much more attention from the physician than it has had.

In enumerating the injurious effects which follow frequent colds in the head, I will repeat what has been said above. The nasal tissues never wholly regain their normal condition after a simple cold in the head; the patient is always a little more annoyed with mucous secretion; he finds that nasal respiration is not quite so easily accomplished; and when he blows his nose he produces unpleasant sensations about the ears. The formation of submucous connective tissue is going on all the time, and the process is very soon a chronic one—chronic hypertrophic nasal catarrh. *The time to cure an incurable chronic nasal catarrh is when it is in the acute stage,* or when the chronic process has proceeded but a short time. Atrophic nasal catarrh, with a dry pharyngitis, comes about in the same manner. Frequent attacks of acute coryza, keeping the nasal tissues constantly congested and so favorable to connective tissue formation, soon affect the glandular tissues of the nose. The mucous follicles are destroyed in two ways. First, they become occluded by direct inflamma-

tion ; and second, they become contracted and destroyed by the abundant infiltration of connective tissues, so that the hyperæmia which accompanies colds in the head means oftentimes obliteration of a large portion of the glandular structure of the nose. Shrinkage of the soft tissues of the nose follows as a direct consequence of the lack of normal secretion ; and undoubtedly, because this same connective tissue infiltration presses upon and interferes with the integrity of the nerve supply, which, after all, is the seat of the difficulty in the atrophic catarrh. It is beyond the province of this paper to endeavor to show the close relationship between phthisis and neglected colds. In an interesting little book, written as early as 1808, E. L. White, surgeon, of Philadelphia, affirms that eight out of every twelve cases of consumption occurring in this country have had their foundation laid in neglected colds.

Although many of the sequelæ, such as loss of smell, nasal obstruction, deafness and ringing in the ears, are usually charged against chronic rather than acute catarrh, the changes in the tissues which cause these unpleasant symptoms are going on insidiously during the ordinary simple cold in the head. We can accomplish but little in a case of chronic catarrh of the middle ear of long standing. The patient is doomed to deafness, and often to that most annoying of troubles, tinnitus aurium. The "ounces of prevention," which are worth "the pounds of cure," are to be used when the patient is going through the first stage—that of cold in the head. A careful examination of the ears, which, unfortunately, is not often made, unless some complaint calls the physician's attention to them will very frequently show that changes have already commenced in the middle ear and tympanum, and the discovery is made in time to preserve the hearing.

All of what has been said goes, I believe, to demonstrate quite clearly the importance of looking upon a cold in the head not as a trifling, harmless, innocent every-day complaint, but as the disease which gives rise to nearly all of the nasal disorders, the commencement of chronic nasal, pharyngeal and laryngeal catarrh, and the beginning of ear troubles. Laryngologists are believing more and more every year that the large majority of throat and bronchial troubles are secondary to nasal disturbances, the inflammation extending directly downwards or the parts below becoming affected by the irritating discharges which fall down into the larynx.

With the many new and improved methods of examining the nasal chambers, and the thorough means of diagnosis at the disposal of the physician, it would be a strange and discouraging fact if some advance had not, or could not be made in the treatment of a cold in the head, or its more severe form, an acute coryza. Let us examine the treatment that has been employed, and compare it with the methods here proposed. Dr. Thompson, of England, says that "colds for the most part are left

to themselves, and if treated at all, are submitted to the nostrums of our grandmothers rather than to the science of our physicians."

The treatment naturally divides itself under two heads—general or constitutional, and local. The constitutional treatment will not detain us. It is interesting, however, to notice what conflicting opinions physicians have had in regard to the etiology of acute coryza, and what widely different methods of treatment have been employed; commencing with the theory that acute catarrh was the local manifestation of a retained poison in the system, the patient was bled, sweated and purged almost to death. The cold in the head was checked by such heroic treatment, but at the expense of great debility and weakness of the patient.

The theory that the cold was caused by the rapid abstraction of heat from the surface of the body was one early held by physicians, and the loss of heat was supplied by copious draughts of hot fluid and heat applied generously to the surface of the body. Medical opinion changed again at the beginning of this century, and the treatment of colds was based on the supposition that they were a local inflammatory condition. The patient was ordered to breathe air at a temperature of  $45^{\circ}$ ; cold liquids were drank in large quantities and cold was also applied to the surface of the body. A writer of about 1800, says that "cool treatment is just as necessary to prevent catarrh as to mitigate small-pox, and the analogy of frozen limbs should be strictly followed," as the mucous membrane of the nose cannot, like a frozen limb, be rubbed with snow and ice, this same writer advocates keeping the patient in a cold room, drinking cold fluids and eating cold food, and in order to keep the patient's body cool, he adds that "it is probable that giving up a single night's sleep would be attended with the happiest effect in such cases." Novel advice, physicians of to-day would think. Then came another class of physicians who "starved" a cold. The "dry" treatment, not a drop of water could be drank, and the patient was put upon a scanty allowance of food. The general treatment of an acute coryza to-day is not novel in any respect, but seems to combine the good points of the different methods of treatment employed during the last hundred years. Authors of the present time seem well agreed upon it, and I have no suggestions to offer. The local treatment interests me more. Local applications to the nasal mucous membrane during the first stages of an acute coryza have never met with approbation. They have frequently been tried with the hope of aborting colds in the head, but the results have not been encouraging. Niemeyer \* says: "Various abortive methods of treatment for acute nasal catarrh have been proposed, but none of them have obtained general approval;" and he mentions the application of the various astringents by

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\* Niemeyer's Practice of Med., vol. i, p. 291.

swabbing and by spray. Other authors mention nothing more in the way of local treatment than the inhalations of hot volatile medicines, or the taking of snuffs, leaving the use of astringents to the later muco-purulent stage of the disease.

The late Dr. S. H. Chapman, of New Haven,\* recommended the use of cold in acute catarrh, in two ways. The double catheter is carried through the nostrils, and a constant stream of ice-water is passed through this. The second method is to pack an elongated, narrow inhaler in a solution of salt and ice; an air-bulb is attached to the inhaler and a current of cold air is driven into the nose. This treatment, however satisfactory, has the disadvantage of being very tedious, and one that a patient will hardly persist in. The use of cold water applied directly to the nasal mucous membrane has not been found efficacious. Niemeyer says that, while it is not dangerous, it fails to give lasting relief. Better than all of them, I can strongly recommend the use of cocaine. The action of a mild solution of cocaine on mucous membranes is by this time undoubtedly known to all. It strongly contracts the small capillaries of the soft tissues of the nose, forcing all blood out, thus effectually controlling hyperæmia and swelling, and, in addition, abolishing the burning pain by its anaesthetic action. This treatment could with propriety be called "starving" a cold; for, by frequent application of the cocaine, the blood can be kept out of the nose. To be sure, the effect of cocaine is transient, a single application lasting not more than half an hour; but it may be used successfully by packing both or the single nostril that is affected with absorbent cotton, and then the patient himself can keep the cotton saturated with the cocaine (four per cent.) by dropping a few drops of the solution into the nostril every hour with a medicine-dropper. It will not be necessary to use it so frequently after the first few applications. The patient should tip the head backward while dropping the solution into the nose. This treatment can be carried out with little inconvenience; the only discomfort will be the necessity of breathing through the mouth, but this will also be necessary if no treatment is employed, on account of the occlusion of the nostrils by the swollen lining membrane. The patient can attend to his usual duties, carrying the bottle of cocaine with him, and making the applications, which require but a moment. This treatment is far superior to the application of any other drug to the nostrils during an acute coryza, and I believe it deserves to become a popular one. Let us go a step further. How can we cure the present cold in the head, and at the same time prevent numerous repetitions of the same trouble? I think we have the desired means in the careful and judicious use of the electric cautery. This will at first thought seem

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\* Chapman : Archives of Laryngology, vol. iv., No. 1, p. 31.

heroic treatment for a simple cold in the head ; but employed correctly it is much milder than any one of the local applications I have mentioned above, except that of cocaine. The galvanic cautery should be used as follows : First note the location of the swellings which obstruct the actively congested nostrils ; the nostrils should then be packed with absorbent cotton wet with a four per cent. solution of cocaine muriate. The cotton should be removed in eight minutes, when the nasal lining membrane will be found quite anæmic, the swelling of the tissues gone, and the nasal cavities fully open. The small platinum wire can now be used without giving pain. The tissues over the inferior turbinated bones should be gently touched with the flat surface of the platinum point, making superficial ulcerations only. If there were swellings posterior to this, use the cautery behind the anterior hypertrophies. The platinum wire should not be too hot—between a red and white heat. Care should be used not to touch or scorch the septum opposite the point of the burned soft tissues, else there would be danger of adhesive inflammation between the two. Now the treatment is the same as that recommended when speaking of the use of cocaine as an astringent. The nostril or nostrils should be kept under the influence of cocaine by means of the absorbent cotton ; in this way inflammatory reaction from the burning can be prevented, and the nostrils kept open. The second day the need of cocaine will be less urgent, and after that it may be used only at intervals.

The object of this method of treatment is two-fold : first, to abort the acute coryza, and, second, by destroying a portion of the hypertrophied nasal tissue, to destroy at the same time the predisposition to colds in the head, and so prevent frequent attacks of coryza. The principle by which the acute attack is checked is, first, that of counter-irritation ; by burning a small area of the congested membrane, the inflammation is brought from neighboring tissues to this one spot ; second, some of the blood vessels are destroyed, and so congestion is diminished ; third, the tissues are leveled by the cauterization, affording open nostrils and preventing the collection of irritating secretion ; and, fourth, the character of the inflammation is changed from that of an acute, perhaps infectious, coryza to that of a simple burn. The second object, removing the predisposition to "colds" is certainly frequently attained. If the redundant mucous membrane and enlarged blood vessels are destroyed, the nose can no longer be obstructed at very slight irritation, the hyperæmia will be but slight, and the secretion moderate ; and what would have been, before the cauterization, a severe coryza, will now be only a transient, subacute process. I have employed this mode of treatment a great many times during the past year, and have usually obtained very satisfactory results. The secret of success lies in *using the cocaine faithfully and the galvano-cautery carefully.*



